

Patent Application
Attorney Docket No. D/99168QD

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Robert D. Russell

Application No.:

CERTIFICATE OF MAILING

Filed:

Parent Application No.: 09/293,098

Parent Filed: April 16, 1999

Parent Examiner: A. Dunwoody

Parent Art Unit: 3629

Title: PLASTIC SHAFTS WITH MOLDED CORE
AND EXTERNAL FEATURE

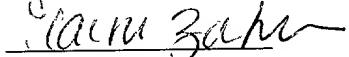
Commissioner for Patents
Washington, D.C. 20231

Sir:

I hereby certify that this correspondence is being transmitted with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Commissioner for Patents, Washington , D.C. 20231, on

February 9, 2001

Elaine Zahn


(Signature)

February 9, 2001

Date of Signature

PRELIMINARY AMENDMENT

IN THE CLAIMS:

Please cancel claims 1-20.

21. (Amended) A process for making a [rotatable] shaft assembly [for transmitting torsional torque having at least one functional feature on an outside surface of said shaft, the process] comprising [the steps of]:

gas injection molding an elongated member having at least a portion which is hollow having an inside surface defining a shaft core and an outside surface defining a shaft functional surface;

providing the elongated member with an aperture gate extending from the inside surface to the outside surface;

placing the hollow portion in a mold which has a cavity for the at least one functional feature on the outside surface of said portion;

filling the mold with a hardenable, moldable material, flowing the moldable material through the shaft core and [cavity] aperture gate;

permitting the moldable material to harden to form [the] a functional feature; and

removing the shaft assembly with the functional feature from the mold.

Please add the following claims:

--22. A process for making a shaft assembly comprising:

injection molding an elongated member using a gas, the elongated member having hollow portion defining a shaft core, inside surface, and an outside surface defining a shaft functional surface;

forming at least one aperture in the elongated member extending from the inside surface to the outside surface;

filling the hollow portion with a moldable material such that the moldable material flows through the shaft core and the at least one aperture; and

coating at least a portion of the shaft assembly with a material adapted to provide a frictional driving surface.

23. A shaft made by the process comprising:
gas injection molding an elongated member having at least a portion
which is hollow having an inside surface defining a shaft core and an outside surface
defining a shaft functional surface;

forming at least one aperture in the elongated member extending from
the inside surface to the outside surface;

placing at least a portion of the shaft in a mold;

filling the mold with a hardenable, moldable material, flowing the
moldable material through the shaft core and the at least one aperture;

permitting the moldable material to harden to form a functional feature;

and

removing the shaft from the mold.

24. A process for making a shaft assembly of claim 21 wherein gas
injection molding includes forming the elongated member such that the distance
from the inside surface to the outside surface along the elongated member is
substantially similar.

25. A process of claim 54 wherein injection molding using a gas
includes forming the elongated member such that the distance from the inside
surface to the outside surface along the elongated member is substantially similar.

26. A shaft of claim 55 wherein gas injection molding includes
forming the elongated member such that the distance from the inside surface to the
outside surface along the elongated member is substantially similar.--

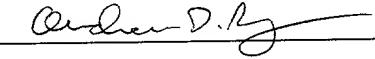
Remarks

Applicant respectfully request allowance of claims 21-26.

Conclusion

In the event the Examiner considers personal contact advantageous to the disposition of this case, the Examiner is authorized to call Applicant's attorney, Andrew D. Ryan, at telephone number (716) 423-4636, Rochester, New York.

Respectfully submitted,



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